

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a representation of a first continuous reactive distillation column employed in the practice of this invention;

FIG. 2 shows a representation of a second continuous reactive distillation column employed in the practice of this invention;

FIG. 3 shows a representative process scheme for one embodiment of this invention where a conventional LAB alkylation reactor (that is also useful in producing LAT) is shown in combination with a fluorine-containing mordenite reactor of this invention wherein a slip stream of reactant to the conventional reactor is sent to the mordenite reactor and wherein the flow of high 2-phenyl isomer LAB or LAT, as the case may be, from the mordenite reactor may be adjusted to vary the 2-phenyl isomer LAB or LAT content of the effluent from the conventional LAB alkylation reactor.

FIG. 4 shows another representative process scheme for one embodiment of this invention where a first conventional LAB alkylation reactor (also useful in LAT production) is shown in combination with a fluorine-containing mordenite reactors of this invention wherein a slip stream of reactant to the conventional reactor is sent to one or both of a pair of mordenite reactor and wherein the LAT or LAB effluent from the first LAB alkylation reactor and the effluent from the one or both mordenite reactors are combined and flowed into a second conventional LAB alkylation reactor.

FIG. 5 shows graphic data of a total detergency study conducted on cloth swatches using detergents having alkylbenzenes of differing 2-phenyl isomer content.

FIG. 6 shows the turbidity of solutions containing conventional alkylbenzene surfactant in aqueous solutions of differing hardness;

FIG. 7 shows the turbidity of solutions containing alkylbenzene surfactant having a 2-phenyl isomer content of about 80% in aqueous solutions of differing hardness;

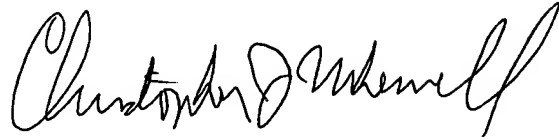
FIG. 8 shows the turbidity of aqueous solutions having a constant water hardness in the presence of different mixtures which each contain different amounts of linear alkylbenzene sulfonates and linear alkyltoluene sulfonates in which the 2-phenyl isomer content of the alkylbenzene sulfonates and the alkyltoluene sulfonates is greater than 80% by weight based upon the total weight of all sulfonates present - ;

FIG. 9 is a graphical depiction of turbidity tests of solutions which contain surfactants according to the present invention; and

FIG. 10 shows a graphical depiction of the turbidity of a solution which contains a surfactant according to the invention in the presence of various levels of water hardness.

All communications in regards to this matter should be directed to the undersigned Agent at the address below. Thank you for your consideration.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Christopher J. Whewell". The signature is fluid and cursive, with the first name "Christopher" being more legible than the last name "Whewell".

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